REMARKS

This responds to the Office Action mailed on February 16, 2006. Reconsideration is respectfully requested.

By this amendment, claims 1, 2, 5 – 8, 10, 12, 13, 15, 15, 22, 24 and 25 are amended, no claims are canceled, and no claims are added; as a result, claims 1 – 27 remain pending in this application.

§112 Rejection of the Claims

Claim 1 was rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly the claim the subject matter with applicant regards as the invention. According to the Examiner, a detector is not disclosed amounting to a gap between the necessary structural connections. Claim 1, as amended, recites a detector. In view of this, Applicants submit that the rejection of claim 1 under 35 U.S.C. § 112 has been overcome.

§102 and §103 Rejections of the Claims

Claims 5- 8 were rejected under 35 USC § 102(e) as being anticipated by Dai (U.S. 20030230728). Claims 1, 3 – 15, 19 – 20 and 24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Silcott (U.S. 20030098422) in view of Dai (U.S. 20030230728). Claims 2, 16 – 18 and 25 - 27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Silcott (U.S. 20030098422) in view of Dai (U.S. 20030230728), and further in view of Englehardt (US 20010025930). Claims 21 and 23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Silcott (U.S. 20030098422) in view of Dai (U.S. 20030230728) as applied to claims 15 and 20, and in further view of Petrich (US 200301060182). Claim 22 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Silcott (U.S. 20030098422) in view of Dai (U.S.

20030230728) as applied to claim 5 and in further view of Reichert (U.S. 6911344) or Giebler (U.S. 6313471).

One difficulty with detecting the elevated presence of an aromatic protein through the air is that some levels may be naturally present in the atmosphere. These atmospheric levels make it difficult to accurately detect the presence of elevated levels of aromatic proteins nearby because of atmospheric absorption of the ultraviolet light. Applicant's FIG. 1B illustrates the different atmospheric transmission levels as a function of wavelength. Applicant's invention, as recited in the claims, solve this problem by using two different, but closely separated, ultraviolet wavelengths to fluoresce the ***same*** aromatic protein. Each ultraviolet wavelength has a different absorption efficiency (a different amount of energy is absorbed) with respect to the particular aromatic protein and therefore the aromatic protein's fluorescence level will be different for each ultraviolet wavelength. The two ultraviolet wavelengths are selected so that they are substantially unaffected by atmospheric absorption levels. In other words, two closely spaced ultraviolet wavelengths are selected from a flatter area of the curve in Applicant's FIG. 1B (e.g., for Tryptophan). In this way, the correlation between first and second fluorescence levels with known atmospheric absorption levels can be used to determine if an ambient threshold is exceeded.

Applicants' claim 1, as amended, distinguishes over the cited references at least in the following ways:

1) By using ***two distinct*** ultraviolet wavelengths to fluoresce the ***same*** aromatic protein. [Both Dai and Silcott use either a single wavelength or a range of wavelengths, or use separate wavelengths for different biological particles.]

2) By detecting the presence of bioagents ***through the air*** (i.e., an aromatic protein). [Dai is directed to identifying biological particles ***on objects***.]

3) By selecting the two ultraviolet wavelengths for ***different absorption levels*** of the same aromatic protein and using this differential absorption efficiency to correlate with the atmospheric absorption level. [Dai does not need to be concerned with atmospheric levels because Dai is concerned with the detection of biological particles on objects. Dai is not

concerned with determining an ***elevated*** level of biological material, just their presence. Silcott uses a single wavelength, not pairs of wavelengths.]

4) By selecting the two ultraviolet wavelengths that are substantially unaffected by different atmospheric absorption levels. [The different wavelengths disclosed by Silcott are not used together, but are examples of suitable wavelengths to be used singularly.]

5) By positioning the detector within the groups of laser diodes allowing for hand-held use and/or flashlight-type embodiments. [The references show detectors separate from the source.]

In Applicants' claim 1, as amended, both the first and second ultraviolet wavelengths are selected fluoresce *the same* aromatic protein. Dai, on the other hand, uses the different wavelengths for *different* dyes [See Dai paragraph 0054 and tables 1 and 2].

Applicants' first and second ultraviolet wavelengths are further selected to be sufficiently close together so that atmospheric variations do not affect one wavelength more than the other. Applicant's claim 4, for example, recites that pairs of wavelengths are separated by approximately between one and five nanometers. This is not the case with Dai. Dai simply uses wavelengths within a particular range for a particular dye (see table 1 and table 2). Furthermore, Dai does not consider the effects of atmospheric levels. Although the wavelengths used by Dai may fluoresce an aromatic protein, there is no way in Dai to distinguish over natural atmospheric variations.

According to the Examiner, Dai discloses diode arrays that are capable of generating a discrete pair of wavelengths (page 5 of the office action). Applicant submits however that Dai does not teach or suggest separately generating wavelengths of a pair and detecting the resultant fluorescent levels. There is no motivation in Dai to use a ***pair*** of wavelengths for a ***single*** biological particle and therefore it cannot be implied that Dai inherently discloses this. According to the Examiner, Silcott fails to teach the use of pairs of wavelengths (page 4 of the office action). Since Silcott fails to teach the use of pairs of wavelengths as recited in Applicants' claims, the combination of Silcott with Dai does not result in Applicants' claimed invention.

In Silcott, separate wavelengths are used for each biological component (see Silcott paragraph 0009). There is no teaching in Silcott to use different wavelengths with different absorption levels for the same biological component. Silcott discloses different wavelengths that are absorbed by various biological components (see Silcott table 2). There is no teaching in Silcott to use two of the wavelengths for the same biological component. Furthermore, the different wavelengths listed by Silcott in table 2 are significantly separated in wavelength such that the atmospheric absorption levels are different. Therefore, these different wavelengths cannot be used as recited in Applicant's claim 1. The use of a single wavelength is further emphasized by Silcott which states that "a single wavelength excitation source for use with the present invention (see Silcott paragraph 0050).

Silcott ***requires*** the use of a ***single*** wavelength to allow for the generation of harmonics for the detection of different biological particles (see paragraph 0051). In other words, different wavelengths are used to detect different biological particles. Applicants' claimed invention, on the other hand, uses two closely spaced wavelengths to detect a single aromatic protein. Accordingly, combining Silcott with Dai does not result in Applicant's claimed invention.

Applicants' claims 2, 6 and 25 further recite that the atmospheric absorption levels for the wavelengths of each pair of the other ultraviolet wavelengths is substantially the same. This selection of pairs of closely spaced wavelengths having about the same atmospheric absorption level is not taught, suggested or motivated by any of the cited art.

Englehardt has been cited by the Examiner for radiating a sample with a plurality of wavelengths over time. The different wavelengths, however, are used to identify ***different*** biological material present in a specimen (i.e., to identify different dyes) (see Englehardt paragraph 0053). This is unlike Applicants' claimed invention with uses two closely spaced wavelengths to detect a ***single*** aromatic protein. Applicants find no teaching, suggestion or motivation in Englehardt to use two wavelengths for a single dye.

Petrich similarly uses a single wavelength. Petrich states that a single wavelength between 250 and 325 nanometer is used to irradiate sample material (see Petrich paragraph 0008). In Petrich, different wavelengths are used for ***different*** types of biological material.

Applicants' claim 5, as amended, recites a system controller to correlate the first and second detected fluorescence levels with atmospheric absorption levels for the aromatic protein at the first and second ultraviolet wavelengths to determine if an ambient threshold of the aromatic protein is exceeded by a predetermined amount. Applicants' claim 5, as amended, further recites that the first and second ultraviolet wavelengths comprise a pair of ultraviolet wavelengths selected to have different absorption levels (i.e., a differential absorption efficiency) for the aromatic protein which are substantially unaffected by atmospheric levels of the aromatic protein.

Applicants' amended claim 24 is directed to a method of detecting a bioagent present in the air comprising fluorescing an aromatic protein with ultraviolet wavelengths of a pair of wavelengths, and correlating detected fluorescence levels with atmospheric absorption levels for the aromatic protein at the wavelengths of the pair to determine if an ambient level for the aromatic protein is exceeded by a predetermined amount. As amended, claim 24 further recites that the pair of ultraviolet wavelengths comprise first and second ultraviolet wavelengths selected to have different absorption levels (i.e., a differential absorption efficiency) for the aromatic protein, the pair being substantially unaffected by atmospheric levels of the aromatic protein.

As discussed above, none of the cited reference, either separately or in combination, teach, suggest or motivate these elements of amended claims 1, 5 and 24. In view of the above, Applicants submit that the rejection of claims 1 – 27 under 35 U.S.C. § 102(e) and/or 35 U.S.C. § 103 has been overcome.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney Gregory J. Gorrie (Reg. No. 36,530) at (480) 659-3314 or Applicant's below-named representative at 310-647-3723 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 50-0616.

Respectfully submitted,

By their Representatives,

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Date 04-21-2006

By _____
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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this _____ day of April, 2006.

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